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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/421,810 04/13/95 CONRAD

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CLIFFORD A POFF  
P O BOX 1185  
PITTSBURGH PA 15230-1185

EXAMINER

HOLLOWAY III, E

ART UNIT PAPER NUMBER

2735

DATE MAILED:

09/27/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

<b>Office Action Summary</b>	Application No. <b>08/421,810</b>	Applicant(s) <b>Conrad et al.</b>
	Examiner <b>Edwin C. Holloway, III</b>	Group Art Unit <b>2735</b>



Responsive to communication(s) filed on Mar 18, 1999

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

#### Disposition of Claims

Claim(s) 49-101 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

Claim(s) \_\_\_\_\_ is/are allowed.

Claim(s) 49-101 is/are rejected.

Claim(s) \_\_\_\_\_ is/are objected to.

Claims \_\_\_\_\_ are subject to restriction or election requirement.

#### Application Papers

See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

The proposed drawing correction, filed on \_\_\_\_\_ is  approved  disapproved.

The specification is objected to by the Examiner.

The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. § 119

Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

All  Some\*  None of the CERTIFIED copies of the priority documents have been

received.

received in Application No. (Series Code/Serial Number) \_\_\_\_\_.

received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

#### Attachment(s)

Notice of References Cited, PTO-892

Information Disclosure Statement(s), PTO-1449, Paper No(s). \_\_\_\_\_

Interview Summary, PTO-413

Notice of Draftsperson's Patent Drawing Review, PTO-948

Notice of Informal Patent Application, PTO-152

-- SEE OFFICE ACTION ON THE FOLLOWING PAGES --

**EXAMINER'S RESPONSE**

1. The request filed on 3-18-99 for a Continued Prosecution Application (CPA) under 37 CFR 1.53(d) based on the instant application is acceptable and a CPA has been established. An  
5 action on the CPA follows. New claims 72-101 of preliminary amendment submitted with the CPA have been entered, but redundant amendments to add new claims 49-71 and cancel claims 1-48 have not been entered because these amendments are duplicates of earlier entered amendments. Applicant is reminded that a CPA a  
10 continuation of the earlier prosecution including the earlier file wrapper and all earlier entered amendments. If applicant intended entry of any new changes to claims 49-71, then an proper amendment with underlining and bracketing to show the changes is required.

15

**CLAIMS**

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

20 The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 72-81 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

25 There is no proper antecedent for "said unique identity data streams" in claims 72 line 7. Claim 72 is incomplete because refers to transmitter means followed by the phrase "such that each receiver unit has the capability to ..." without specifying any receiver means or structure to provide this. It is unclear

how the transmitter means could provide the receiver capability.

It appears that applicant mistakenly combined two different subsections when copying this claim. There is no proper antecedent for "said receiver unit microprocessor" in claim 77.

5       4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

10           The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 72-101 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding independent claim 72, 82 and 92, the individual stationary receiver units each having the capability to store multiple unique identity data streams received from multiple transmitters are not supported by the specification. Applicant's store is in microcontroller 222 of the arbiter rather than the microcontroller 158 of the receiver. Therefore, applicant lacks individual receiver units each with a store. Further, microcontroller 222 is disclosed as storing a received unique identity which is removed when the code stops reporting for more than 10 seconds. Only one code is described. The microcontroller 222 stores nurse level information with a list of

ID codes, but this is sent from the central computer 2, not the receiver unit. Therefore applicant lacks storage of multiple unique codes from multiple transmitters. Further, claim 72 is incomplete for lacking essential elements including infrared receiving means and programmable processor means required to receive and store codes in the receiver unit. Independent claim 5 82 requires individual receiver units each comprising a single receiving means and single microprocessor means such that the total number of said microprocessor means is equal to the total 10 number of individual receiver units each receiver unit has the capability to store multiple unique identity streams is not supported by the specification. Applicant's specification requires first microprocessor 158 at the receiver and a second microprocessor 222 in the arbiter which is not in the receiver 15 unit and does not result in the same number of receiver units and microprocessors. Applicant's specification does not particularly point out a single arbiter for each receiver, and if such was provided, specification would only support storage of a single unique code in the table for the single receiver which is removed 20 when reception stops. Claim 92 includes a paired single infrared receiving means and single microprocessor means which is not supported for the same reason applied to claim 82.

Dependent claims 72, 84 and 93 include a stream "consisting of" 16 data bits framed by a pair of start bits and stop bit

which is not supported because applicant includes only a single start bit in fig. 4, 20 data bits instead of 16, and a 6 bit checksum which corresponds to parity for validity checking rather than a single stop bit for framing. Note that these claims use  
5 the closed "consisting of" rather than the open "comprising" language.

Dependent claims 75, 85 and 95 include transmit units transmit both vertically and horizontally which is not supported by LED's 84A and 84B because it is not stated that these transmit  
10 vertically and horizontally.

Dependent claims 77, 87 and 97 include said receiver unit microprocessor means test received data for validity. Applicant discloses microcontroller 158 checking validity, but requires microcontroller 222 for storage which is not the same said  
15 microprocessor means.

Dependent claims 78, 81, 88, 91, 98 and 101 include slave receiver units having no individual microprocessor means connected to individual said receiver units. The slave receiver unit is not supported by applicant's preamp board 106 with  
20 photodiode 118 because the preamp board 106 is mounted in a single gang face place with the logic board 108 including microcontroller 158. This is considered a receiver unit with a microprocessor means. Further, the preamp board 106 provides the photodiodes 118 applicant alleges to support the receiver unit

with microprocessor means in the independent claims. It is inconsistent to for applicant to use the same structure to support the receiver unit with microprocessor means of the independent claim and the slave receiver unit without 5 microprocessor means of the dependent claims. Also, use of the same receiver structure cannot support slave receiver unit connected to another said receiver unit as it could at most be one of these, but not both.

Dependent claims 79, 89, 99 include "each" transmitter unit 10 repeatedly transmits a pattern "consisting of" three transmission with different time intervals between each of the three. This is not supported by applicants fig. 3 which does is not limited to "three" transmissions by "each" transmitter.

**ART REJECTION**

15 6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

20 (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

25 7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant 30 is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and

potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 49-50, 53-55, 57-65, 67, and 69-70 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 5,4990,892 (Guest) in combination with US Patent No. 5,363,425 (Mufti) and US Patent No. 3,403,381 (Haner).

Guest discloses a personnel locating system with transmitters sending bursts to receivers at distinct burst periods to prevent synchronization. Each transmitter uses a different or divers period. The transmitters can be carried by people in order to locate them which is all that is required by the claiming of person, animal, or equipment in an alternative manner. Each transmitter uses a different or divers period. The transmitters can be carried by people in order to locate them which is all that is required by the claiming of person, animal, or equipment in an alternative manner. Each transmitter in Guest sends at specified periods rather than the varying intervals of claim 49. Guest does not specify using an algorithm.

Mufti discloses an analogous art identification system which includes transmitters having microcontrollers which are provided with software or algorithms to provide the transmitter functions.

Haner discloses a system directed to preventing interferences between transmitters similar to Guest, but uses randomly varying repetition times rather than fixed times.

Regarding claims 49 and 65, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided the functions of the Guest transmitter in response to an algorithm or software as described by Mufti since 5 a software programmable device is easier and cheaper to mass produce and provides flexibility because the software can be modified to provide different functions. Alternatively, The transmitter in Mufti could have been modified to send infrared bursts as described by Guest which have advantages over RF 10 transmission such as not requiring FCC licensing. It further would have been obvious to have included randomly specifying the transmission intervals as described by Haner which is advantageous for reducing interference when the number of transmitters is so large that they cannot each be assigned to a 15 separate transmission interval. It would have been obvious to have specified the random period by an algorithm since the random pulses generator of Haner outputs a pulse at random times which is a representation of a random number provided by a randomizing algorithm and further because Mufti suggest using software or 20 algorithms to provide all the transmitter operating functions (col. 7, lines 4-9) and Mufti describes random intervals for the burst transmission in col. 8, lines 1-3.

Regarding claim 50, Mufti discloses a microcontroller (61) responding to software or algorithms as discussed above.

Regarding claim 53, Guest discloses a unique sixteen bit binary codeword in col. 2, line 20, and it would have been an obvious design choice to extend this to any number of binary bits, such as 20 bits, in order to allow additional unique IDs  
5 for additional transmitter units up to  $2^{20}$  raised to the 20th power = 1048576 units.

Regarding claim 54, the 20 millisecond burst is an obvious design choice which is suggested by the 55 millisecond burst period of Guest (cols. 8-9) which is at least of the same  
10 magnitude.

Regarding claim 55, the random intervals of Haner is between .5 and 1.5 seconds which would amount to an average interval of about one second.

Regarding claim 57, Guest includes a transmission of two infrared pulses of 5 microsecond duration for a total  
15 transmission (high level) of 10 microseconds in col. 9, lines 50-52) which at least suggest a 10 microsecond flash.

Regarding claim 58, a plurality of receivers with allowable reception range overlap is described in col. 5, lines 1-26 of  
20 Guest, and Mufti includes validation aided by a CRC as discussed above.

Regarding claims 59-60, Guest includes an up to date registry and detecting presence and continued present in col. 3, lines 9-24 which corresponds to validating IDs and forming start

and stop events when detected and lost.

Regarding claim 61, Guest includes connections between the central computer (44) and the gathering means (34) and it would have been obvious for these to include a plurality of serial ports since such is commonplace in the computer art.

Regarding claim 62, a terminal and keyboard for accessing data are commonplace in the art and are typically provided by a PC or workstation such as the workstation (18) of Mufti discussed in col. 5, lines 28-42 for accessing database (17).

Regarding claim 63, a display means for indicating reports stored at a central computer is commonplace in the computer art and is provided by the workstation of Mufti discussed above and/or the registry discussed in col. 3, lines 1-35 of Guest.

Regarding claim 64, Guest includes a hospital environment with communication to existing nurse stations as discussed in col. 3, lines 9-21 and col. 10, line 66 - col. 11, line 15.

Regarding claim 67, Mufti discloses a CRC error correction word discussed above.

Regarding claim 69, the CRC of Mufti is considered to be a binary checksum.

Regarding claim 70, the receiver of Mufti validates the CRC (col. 8, lines 59-60), and it is commonplace to validate the CRC by recalculating and comparing the CRC values.

9. Claims 49-65, 67 and 69-71 are rejected under 35 U.S.C.

§ 103(a) as being unpatentable over US Patent No. 4,990,892 (Guest) in combination with US Patent No. 5,363,425 (Mufti) and US Patent No. 3,403,381 (Haner) as applied above to claims 1, 49-50, 53-55, 57-65, 67 and 69-70 and further in view of US Patent No. 5,206,637 (Warren).

Regarding claims 49-50, 53-55, 57-65, 67 and 69-70 if the algorithm limitation is interpreted to required a microcontroller with memory and microcode, then Warren suggests that such is obvious for the reasons stated below.

Regarding claim 51, Guest, Mufti, and Haner include unique ID's or addresses for the transmitters, and Mufti includes a microcontroller in the transmitter, but Mufti does not specify that the microcontroller includes a memory containing the unique address. Warren discloses an access system with a microcontroller connected to a memory for storing access codes. See col. 4, lines 46-54. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have included the ID stored in memory associated with the microcontroller as taught by Warren in the combination applied above since this would provide flexible (programmable) ID storage, and it further would have been obvious for this memory to be inside the microcontroller since making elements integral/separable and change in location of parts has been established to be obvious by case law.

Regarding claim 52, Mufti describes that the software instructions of the microcontroller provides for generations of a signal as shown in fig. 9 and col. 8 including a preamble (start bits), a binary ID code, and a CRC (checksum), but does not 5 specify "microcode." Guest includes a unique 16 bit binary codeword with start bit and parity. Warren discloses microcode for providing the instructions of the microcontroller (col. 4, lines 46-50) Therefore it would have been obvious to have included the transmission instructions of Mufti in microcode 10 which is suggested by Warren to be an equivalent terminology for the instructions of the microcontroller of Mufti.

Regarding claim 56, Mufti describes that the software instructions of the microcontroller in the receiver provides for validation of the received codes including the CRC shown in fig. 15 8 and col. 7. but does not specify "microcode." Warren discloses microcode for providing the instructions of the microcontroller (col. 4, lines 46-50) including comparing and validating access codes. Therefore it would have been obvious to have included the receiver instructions of Mufti in microcode 20 which is suggested by Warren to be an equivalent terminology for the instructions of the microcontroller of Mufti.

Regarding claim 71, the receiver in fig. 8 of Mufti includes a microcontroller (82) which provides the validation and Warren teaches microcode as discussed above.

10. Claims 66 and 68 are rejected under 35 U.S.C. § 103(a) as being unpatentable over US Patent No. 4,990,892 (Guest) in combination with US Patent No. 5,363,425 (Mufti) and US Patent No. 3,403,381 (Haner) and US Patent No. 5,206,637 (Warren) as applied above to claims 1, 49-65, 67 and 69 and further in view of the "Understanding Data Communications" book by Radio Shack.

5                  The Radio Shack book describes using multiple bits per baud in order to increase the signalling rate on a channel with a limited bandwidth that causes a fixed maximum baud rate. This  
10                can be implemented by providing a dabit in which two bits are communicated by each modulated pulse or sine wave depending on the phase shift (position) of the wave as shown in table 5-4 or 5-6. Regarding claim 66, it would have been obvious to one of ordinary skill in the art at the time the invention was made to  
15                have included a dabit in the combination applied above because the Radio Shack book states that this provides advantages such as an increased signalling rate.

20                Regarding claim 68, it further would have been obvious to have provided the dabit for the CRC for the same reasons discussed above.

INTERFERENCE

11. Claims 72-81 of this application are asserted by applicant to correspond to claim(s) 1-10 of U.S. Patent No. 5627524.

The examiner does not consider claims 72-81 to be directed

to the same invention as that of U.S. Patent No. 5627524 because claim 72 is missing the limitations in lines 6-9 of the patent. This is an incomplete copy. Accordingly, an interference cannot be initiated based upon these claims.

5       12. Claims 72-101 of this application have been copied from U.S. Patent No. 5627524 for the purpose of an interference.

Applicant has failed to specifically apply each limitation or element of each of the copied claim(s) to the disclosure of the application. Applicant has presented a claim chart 10 indicating alleged support for the claimed subject matter, but the claims are not supported for the reasons stated in the 35 USC 112 first paragraph rejection.

13. Claims 72-101 of this application has been copied by the applicant from U. S. Patent No. 5627524. These claims are not 15 patentable to the applicant because they have been rejected under 35 USC 112 first and/or second paragraph.

An interference cannot be initiated since a prerequisite for interference under 37 CFR 1.606 is that the claim be patentable to the applicant subject to a judgement in the interference.

20                   RESPONSE TO ARGUMENT

14. Applicant's arguments filed 3-18-99 have been fully considered but they are not persuasive and/or moot in view of new grounds of rejection.

Applicant's arguments regarding entry of new claims 72-101

are not persuasive because the claims are rejected under 35 USC  
112 as being indefinite and/or not supported by the specification  
of the instant application. The response to the prior arguments  
regarding claims 49-71 are repeated below. Since the copied  
5 claims are not supported and there are no allowable claims, an  
interference will not be declared.

Applicant's argument that the Mufti patent is non-analogous  
art is not persuasive. Applicant's invention is directed to a  
locating and monitoring system for a person, animal or equipment  
10 and since Mufti is directed to a personal locating and asset  
tracking system it is clearly analogous art. Applicant points  
out that Mufti differs from applicant's invention and then  
incorrectly concludes that this makes the reference non-  
analogous. Because of these differences, Mufti does not  
15 anticipate applicant's claims, but the difference do not make the  
reference non-analogous and the combination of reference shows  
that these difference would have been obvious to one of ordinary  
skill in the art at the time the invention was made. The  
examiner asserts that the other applied references are analogous  
20 and/or within the same field of endeavor because Guest and Warren  
are directed to locator systems and Haner and the Radio Shack  
book are directed to data communications which are considered to  
be within the field of knowledge of the artisan in the wireless  
locator art. Further, Haner is directed to variation of response

time to prevent interference or synchronization between a plurality of transmitters which is reasonably pertinent to the problem being solved by applicant. Therefore the applied references comply with the determination analogous art set forth  
5 in In re Wood, 202 USPQ 171, 174.

The argument that unlike Mufti, "applicant's claims 49 and 65 call for the occurrence of each pulse burst in time relative to the start of each time interval varying under the control of the means responsive to the algorithm and using the unique binary  
10 identification code of that transmitter to prevent synchronization with other transmitters" is not persuasive. Claim 49 includes language substantially similar to the above, but claim 65 does not and therefore applicant's argument is not commensurate with the scope of the claims. Also, applicant is  
15 reminded this rejection is based on a combination of references and not on Mufti alone. Varying of the interval is provided by the "random" interval discussed below which when provided by a software (algorithm) driven microcontroller as in Mufti is considered to be provided by a means responsive to an algorithm  
20 which also provides a binary ID code (92 in fig. 9) which prevents synchronization or interference.

Applicant's argument with reference to Mufti asserts that the applicants disclosure does not include "random" intervals for burst transmission but is controlled by an algorithm which is the

opposite. This is not persuasive. Mufti discloses transmitting at random intervals in col. 8 line 1 and since all the transmitter functions in Mufti are provided by the microcontroller (61) which operates on algorithms, then the 5 random interval is a variation of the response interval making the microcontroller equivalent to applicant's means responsive to an algorithm to control varying of the interval. To separation from other transmitters, each transmitter microcontroller would require unique information for the random transmission which 10 would be in binary form and therefore present a unique binary code. Further, the random pulse generator of Haner provides random pulses in a predetermined manner (recur periodically within predetermined time limits in col. 6, lines 29-41) which is equivalent to applicant's means responsive to an algorithm for 15 transmitting bursts at varying intervals for the same purpose of preventing interference or synchronization of a plurality of transmitters. Haner discloses that many techniques for producing random pulses are available. One known technique is to use a pseudo random number generating algorithm responsive to an input 20 code such as a seed. Regarding the means responsive to the algorithm being responsive to an address in memory, such is shown to be obvious by Warren as applied in the rejection of claim 51.

In response to Applicant's argument that the Examiner's conclusion of obviousness is based upon improper hindsight

reasoning, it must be recognized that any judgement on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the 5 time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. *In re McLaughlin*, 443 F.2d 1392; 170 USPQ 209 (CCPA 1971).

Regarding the argument that it is improper to select 10 features, to select features from the prior art to effect results expected from these features is within the purview of 35 U.S.C. § 103. See In re Skoner, 186 USPQ 80 (CCPA 1975).

In response to Applicant's argument that there is no suggestion to combine the references, the Examiner recognizes 15 that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the 20 modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). References are evaluated by what they suggest to one versed in the art, rather than by

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their specific disclosures. In re Bozek, 163 USPQ 545 (CCPA) 1969. In this case, Haner discloses varying the response times of different transmitters to solve the problem of interference or synchronization which is the same problem solved by applicant.

5 Where it is not practical to synchronize the multiplexing of the transmitters to particular time slots for each transmitter as in Guest or where there are too many transmitters to provide separate time slots for each, the technique of Haner minimizes the probability that signals will collide.

10 Applicant's assertions that the references are non-analogous, that hindsight is used and that the references themselves must provide some teaching of the combination are not persuasive for the reasons stated above.

CONTACT INFORMATION

15 15. Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology center 2700 receptionist** whose telephone number is **(703) 305-3900**.

Any OFFICIAL or FORMAL amendments submitted by facsimile should be clearly labeled "**OFFICIAL**" and sent to **technology center 2700 fax number (703) 308-9051** and will be processed by the technical support staff.

20 25 Any DRAFT, PROPOSAL, UNOFFICIAL or COURTESY COPY papers submitted by facsimile should be clearly labeled "**DRAFT**" and sent to the **art unit fax number (703) 305-3988** and will be received by the examiner when called at the telephone number listed below.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Edwin Holloway** whose telephone number is **(703) 305-4818**.

30 EH  
09-25-99

  
**EDWIN C. HOLLOWAY, III**  
PRIMARY EXAMINER  
ART UNIT 2735